Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A system for monitoring intracellular binding interactions, comprising:

a reaction vessel comprising a body structure having at least first and second intersecting microfluidic channels disposed within the body structure, the body structure comprising a window providing optical access to at least the first microfluidic channel, said first microfluidic channel having disposed therein a cell suspension comprising biological cells having at least a first component of a binding reaction disposed within the cells, and a second component of the binding reaction comprising a non-protein molecule and having a fluorescent label associated therewith; and

a detector in sensory communication with at least said first microfluidic channel, the detector comprising a source of polarized excitation light, an optical train that directs the polarized excitation light toward the first microfluidic channel and that collects fluorescence emitted from the first microfluidic channel, means for separating the collected fluorescence into a component parallel to the excitation light and a component perpendicular to the excitation light, and means for separately detecting the parallel and perpendicular components~~being configured to detect an amount of polarized fluorescence emitted from the first microfluidic channel~~.

2-3. (cancelled)

4. (original) The system of claim 1, wherein the second component of the binding reaction comprises a binding fragment of a full length protein that is capable of binding the first component.

5. (original) The system of claim 4, wherein the second component is between about 4 and 100 amino acid residues in length.

6. (original) The system of claim 4, wherein the second component is between about 4 and about 50 residues in length.

7. (original) The system of claim 4, wherein the second component comprises a molecular weight that is less than about 10 kD.

8. (original) The system of claim 4, wherein the second component comprises a molecular weight that is less than about 5 kD.

9. (original) The system of claim 4, wherein the second component comprises a carbohydrate, a lipid, cAMP, cGMP or diacylglycerol.

10. (original) The system of claim 1, wherein the first component of the binding reaction comprises an intracellular nucleic acid binding protein and the second component comprises a nucleic acid probe.

11. (original) The system of claim 10, wherein the nucleic acid probe is from about 5 to about 100 bases in length.

12. (original) The system of claim 10, wherein the nucleic acid probe is from about 10 to about 50 bases in length.

13. (original) The system of claim 10, wherein the first component comprises a DNA binding protein and the second component comprises a fluorescently labeled DNA probe.

14. (original) The system of claim 10, wherein the nucleic acid probe comprises a translocation functionality.

15. (original) The system of claim 14, wherein the translocation functionality comprises a translocating peptide.

16. (original) The system of claim 15, wherein the translocating peptide comprises Antp-HD or a fragment thereof.

17. (original) The system of claim 15, wherein the translocating peptide comprises a polypeptide that includes a sequence homologous to residues 48-60 of an HIV-1 tat protein (SEQ ID NO:1).

18. (original) The system of claim 10, wherein the nucleic acid binding protein is a component of a cell signaling pathway, activation of the pathway activating or deactivating the nucleic acid binding protein.

19. (previously presented) The system of claim 1, wherein the cells in the cell suspension are selected from a mammalian cell, bacterial cell, fungal cell, yeast cell, insect cell, and a plant cell.

20. (previously presented) The system of claim 19, wherein the cells in the cell suspension are mammalian cells that are selected from a CHO cell, a HEK-293 cell, a L-cell, a 3T3 cell, a COS cell, a THP-1 cell, a RBL-1 cell, a YB-1 cell, a Jurkat cell and a U937 cell.

21-28. (cancelled)